

524,670

Har'd PCT/P 11 FEB 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 February 2004 (26.02.2004)

PCT

(10) International Publication Number
WO 2004/016535 A1

(51) International Patent Classification⁷: **B66B 11/00**,
11/08

(21) International Application Number:
PCT/JP2003/009940

(22) International Filing Date: 5 August 2003 (05.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2002-236638 14 August 2002 (14.08.2002) JP

(71) Applicant (for all designated States except US):
TOSHIBA ELEVATOR KABUSHIKI KAISHA
[JP/JP]; 5-27, Kitashinagawa 6-chome, Shinagawa-ku,
Tokyo 141-0001 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KAWASAKI, Kan**

[JP/JP]; 1-22-11-202, Inokashira, Mitaka-shi, Tokyo 181-0001 (JP). **ISHII, Takashi** [JP/JP]; 2064-2, Matsudo, Matsudo-shi, Chiba 271-0092 (JP). **SANO, Hiroshi** [JP/JP]; 3-5-16, Shimizugaoka, Fuchu-shi, Tokyo 183-0015 (JP).

(74) Agents: **YOSHITAKE, Kenji** et al.; Kyowa Patent & Law Office, Room 323, Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-0005 (JP).

(81) Designated States (*national*): AU, CN, KR, SG, US.

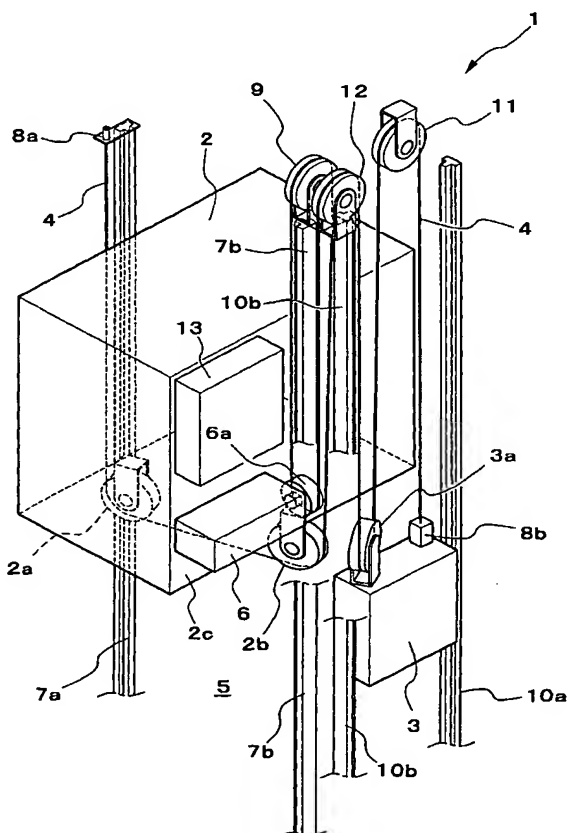
(84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: ELEVATOR



(57) Abstract: An elevator comprises a cage (2) suspended in an elevator shaft (5) and provided with cage-side sheaves (2a, 2b); a counterweight (3) suspended in the elevator shaft (5) and provided with a counterweight-side sheave (3a); a diverting sheave (11) disposed at a position above the counterweight (3) in an upper part of the elevator shaft (5); first and second upper sheaves (9, 12) disposed in an upper part of the elevator shaft (5); and a main rope (4) wound around the first and the second upper sheaves (9, 12), and having a first part wound around the cage-side sheaves (2a, 2b) and having a first end fastened to a fixed structure in an upper part of the elevator shaft (5), and a second part passed successively via the counterweight-side sheave (3a) of the counterweight (3) and the diverting sheave (11) and having a second end fastened to the counterweight (3).

WO 2004/016535 A1

WO 2004/016535 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/09940

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B66B11/00 B66B11/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 B66B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 352 221 A (LG IND SYSTEMS CO LTD ; LGAAOTIS ELEVATOR COMPANY (KR)) 24 January 2001 (2001-01-24)	1, 3, 4
A	page 19, line 8-21; figures 12-14, 24-26 page 20, line 15-19 page 22, line 2 - page 23, line 4	2, 5, 6
X, P	WO 03 042089 A (FUJINO ATSUYA ; HITACHI LTD (JP); OMIYA AKIHIRO (JP); INABA HIROMI) 22 May 2003 (2003-05-22)	1, 3, 4
A	abstract; figures	2, 5, 6
A	EP 1 112 955 A (KONE CORP) 4 July 2001 (2001-07-04) abstract; figures	1-6

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

9 December 2003

Date of mailing of the international search report

19/12/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Eckenschwiller, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/09940

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2352221	A	24-01-2001	KR	2001010321 A	05-02-2001
			CN	1280951 A	24-01-2001
			JP	2001039645 A	13-02-2001
<hr/>					
WO 03042089	A	22-05-2003	JP	2003146555 A	21-05-2003
			WO	03042089 A1	22-05-2003
<hr/>					
EP 1112955	A	04-07-2001	FI	953153 A	23-12-1996
			EP	1112955 A1	04-07-2001
			CN	1143044 A , B	19-02-1997
			DE	69630081 D1	30-10-2003
			EP	0749930 A2	27-12-1996
			JP	3168161 B2	21-05-2001
			JP	9165172 A	24-06-1997
			US	5906251 A	25-05-1999
<hr/>					